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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,907	03/15/2004	Rina Panigrahy	47380	3071

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THE LAW OFFICE OF KIRK D. WILLIAMS  
PO BOX 61538  
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EXAMINER
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LIE, ANGELA M

ART UNIT	PAPER NUMBER
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2163

MAIL DATE	DELIVERY MODE
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06/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/801,907

Applicant(s)

PANIGRAHY ET AL.

Examiner

Angela M. Lie

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/23/06, 1/21/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claims 3 and 4 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.**

**As to claim 3**, the final step of this method does not recite useful, tangible and concrete result. In particular, "identifying the longest matching prefix" is not considered useful, unless the result of the identification is utilized right away, for instance accessing the node, or if the result of the comparison is at least stored so that a user could make a use of it in the future.

**As to claim 4**, this claim is also rejected by the virtue of its dependency upon the rejected claim 3, and further by failing to heal the deficiency of the independent claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. **Claims 1-6, 24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Eatherton et al (US Patent No. 6560610).**

**As to claims 1, 3, 5, 6 and 24,** Eatherton discloses an apparatus and a method for determining a longest matching prefix, comprising: an external memory (Figure 9, element 710) for storing one or more non-first-level tiny trees (Figure 9, levels 17-24); and an applications specific integrated circuit (ASIC) including a lookup engine (Figure 9, element 702) and internal memory (Figure 9, element 708) for storing a set of first-level tiny trees (Figure 9, levels 0-8), the ASIC configured to perform operations, the operations including: determining which particular first-level tiny tree of a plurality of first-level tiny trees to search based on a lookup value (column 2, lines 21-29, wherein the lookup value corresponds to target string); retrieving a first-level root node of the particular first-level tiny tree from the internal memory (Figure 3, root array), the first level root node including a first-level plurality of keys (Figure 1, prefix database, wherein each node i.e. P1, P2 etc correspond to a certain prefix i.e. \*, 1\* respectively); traversing the particular first-level tiny tree stored in the internal memory to identify a next-level tiny tree (column 2, lines 30-36, wherein traversing corresponds to taking

branches left or right), the traversing the particular first-level tiny tree including comparing the lookup value with one or more of the first-level plurality of keys (column 12, lines 12-15, wherein bits in a current stride representing certain node are considered to be keys with which the target string is matched), wherein the first-level tiny tree and the next-level tiny tree are independent trees (Figure 9, for instance level 1 and level 17 reside on two separate memories); retrieving a root node of the next-level tiny tree stored in the external memory (column 3, lines 34-37, wherein search might require going to the lower levels of the tree and if it reaches level 17, the external memory has to be accessed), the root node including a plurality of keys to compare with the lookup value and a back value to identify a matching prefix should no matching prefix be identified within the particular tree (Figure 3, for instance level 2 comprises 3 root nodes (for each subtree), and each of those nodes comprises the prefix (key) representing it (Figure 1, prefix database)); traversing the particular next-level tiny tree stored in the external memory to either identify a matching prefix or a no match condition, the traversing the particular next-level tiny tree including comparing the lookup value with one or more of the plurality of keys (column 12, lines 12-15, wherein bits in a current stride representing certain node are considered to be keys with which the target string is matched); and identifying as the longest matching prefix identified based on the back value if the traversing resulted in the no match condition else the matching prefix (column 8, lines 17-22, wherein the target string is matched as far as possible, the algorithm traverses the tree, and if it is determined that there is no better match than the previous one, the most recent result is used).

**As to claim 2**, Eatherton discloses the apparatus comprising an associative memory, wherein the determining which particular first-level tiny tree of a plurality of first-level tiny trees to search based on a lookup value includes performing a lookup operation on the associative memory on based on the lookup value (column 2, lines 49-58, wherein the value has to be compared to the respective root nodes, in order to decide the correct path finding the longest matching prefix).

**As to claims 4 and 25**, Eatherton discloses the apparatus wherein the first level tiny tree is associated with no back value (Figure 1, wherein first level comprises 1\* which could not have the back value, furthermore levels 0 and 1 are the root nodes of the tree which is completely independent from other data tree).

### ***The Prior Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Rhoades (US Publication No. 2005/0242976) discloses a lookup engine comprising a value and associated key value, so that outputting a value that is associated with the stored key value, which matches an input key value, carries out the lookup.

***Inquiry***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. Lie whose telephone number is 571-272-8445. The examiner can normally be reached on M-F.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**Angela M Lie**



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